

Applicants: CHOU, Tsung Kuan Allen, et al.
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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the Application.

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Previously Presented) The device of claim 8, wherein a contact force of at least 100 micro-Newtons is maintained between said first and second electrical contacts in response to an actuation voltage of less than 40 Volts between said top and bottom structures.
6. (Previously Presented) The device of claim 8, wherein at least one of said stoppers is able to contact said bottom electrode when said switch is in said collapsed state.
7. (Previously Presented) The device of claim 8, wherein said bottom electrode structure comprises one or more electrically isolated islands, and wherein at least one of said stoppers is able to contact at least one of said islands when said switch is in said collapsed state.
8. (Currently Amended) A device comprising:
 - a contact switch comprising:
 - a bottom electrode structure including a bottom actuation electrode; and
 - a top electrode structure including:
 - a generally rigid top actuation electrode; [[and]]
 - one or more stoppers positioned on said top actuation electrode and
 - able to maintain a predetermined gap between said top actuation

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electrode and said bottom actuation electrode when said switch is in a collapsed state;

a non-rigid support beam operably attached to said bottom electrode structure to support said top actuation electrode;

a non-rigid contact beam ~~asseeiated with~~ attached to said top actuation electrode and distal from said support beam; and

a first electrical contact positioned on said contact beam and able to be electrically connected with a second electrical contact positioned on said bottom electrode structure when said switch is in a closed state, wherein said contact beam is deflected when said switch is in said closed state, and wherein a spring constant of said contact beam is bigger than a spring constant of said support beam.

9. (Canceled)

10. (Canceled)

11. (Currently Amended) A system comprising:

a switching arrangement including at least one contact switch, said contact switch comprising:

a bottom electrode structure including a bottom actuation electrode;

a top electrode structure including:

a generally rigid top actuation electrode; [[and]]

one or more stoppers positioned on said top actuation electrode and able to maintain a predetermined gap between said top actuation electrode and said bottom actuation electrode when said switch is in a collapsed state;

a non-rigid support beam operably attached to said bottom electrode structure to support said top actuation electrode;

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a non-rigid contact beam ~~associated with~~ attached to said top actuation electrode and distal from said support beam; and

a first electrical contact positioned on said contact beam and able to be electrically connected with a second electrical contact positioned on said bottom electrode structure when said switch is in a closed state; and

a switch controller able to control operation of said at least one contact switch, wherein said contact beam is deflected when said switch is in said closed state, and wherein a spring constant of said contact beam is bigger than a spring constant of said support beam.

12. (Original) The system of claim 11, wherein at least one of said stoppers is able to contact said bottom electrode when said switch is in said collapsed state.
13. (Original) The system of claim 11, wherein said bottom electrode structure comprises one or more electrically isolated islands, wherein at least one of said stoppers is able to contact at least one of said islands when said switch is in said collapsed state.
14. (Canceled)
15. (Previously Presented) The system of claim 11, wherein a contact force of at least 100 micro-Newtons is maintained between said first and second electrical contacts in response to an actuation voltage of less than 40 Volts between said top and bottom structures.
16. (Canceled)
17. (Canceled)
18. (Previously Presented) The device of claim 20, wherein said top electrode structure comprises a top actuation electrode and one or more stoppers.
19. (Previously Presented) The device of claim 20, wherein said bottom electrode structure comprises a bottom actuation electrode and one or more electrically isolated islands.

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20. (Previously Presented) A device comprising:

a contact switch comprising top and bottom electrode structures, said switch is able to be switched to a collapsed closed state wherein a first electrical contact associated with said top structure is in contact with a second electrical contact associated with said bottom structure, wherein said top structure is in contact with said bottom structure, wherein a predetermined gap is maintained between other portions of said top and bottom structures, and wherein a contact force of at least 100 micro-Newtons is maintained between said first and second electrical contacts in response to an actuation voltage of less than 40 Volts between said top and bottom structures.

21. (Currently Amended) A wireless device comprising:

an antenna; and

a switching arrangement comprising first and second contact switches, said first switch able to connect said antenna with a transmitter, and said second switch able to connect said antenna with a receiver, wherein at least one of said contact switches is a collapsible switch comprising:

a bottom electrode structure including a bottom actuation electrode; and

a top electrode structure including:

a generally rigid top actuation electrode; [[and]]

one or more stoppers positioned on said top actuation electrode and able to maintain a predetermined gap between said top actuation electrode and said bottom actuation electrode when said switch is in a collapsed state;

a non-rigid support beam operably attached to said bottom electrode structure to support said top actuation electrode;

a non-rigid contact beam ~~associated with~~ attached to said top actuation electrode and distal from said support beam; and

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a first electrical contact positioned on said contact beam and able to be electrically connected with a second electrical contact positioned on said bottom electrode structure when said switch is in a closed state, wherein said contact beam is deflected when said switch is in said closed state, and wherein a spring constant of said contact beam is bigger than a spring constant of said support beam.

22. (Original) The wireless device of claim 21, wherein at least one of said stoppers is able to contact said bottom electrode when said switch is in said collapsed state.
23. (Original) The wireless device of claim 21, wherein said bottom electrode structure comprises one or more electrically isolated islands, wherein at least one of said stoppers is able to contact at least one of said islands when said collapsible switch is in said collapsed state.
24. (Previously Presented) The wireless device of claim 21, wherein a contact force of at least 100 micro-Newtons is maintained between said first and second electrical contacts in response to an actuation voltage of less than 40 Volts between said top and bottom structures.
25. (Canceled)